North Texas NTMS Microwave Society

AA5C 24 GHz Transverter

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AA5C 24 GHz Wavelab Transverter

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- Objectives
  - Build a 24 GHz transverter for portable operations
    - Single 13.8 VDC Supply
    - 144 MHz IF
    - Simple interface
      - Power
      - PTT
  - Meter for relative TX output power indication
  - Extra space for future LNA/PA
  - Have some fun building

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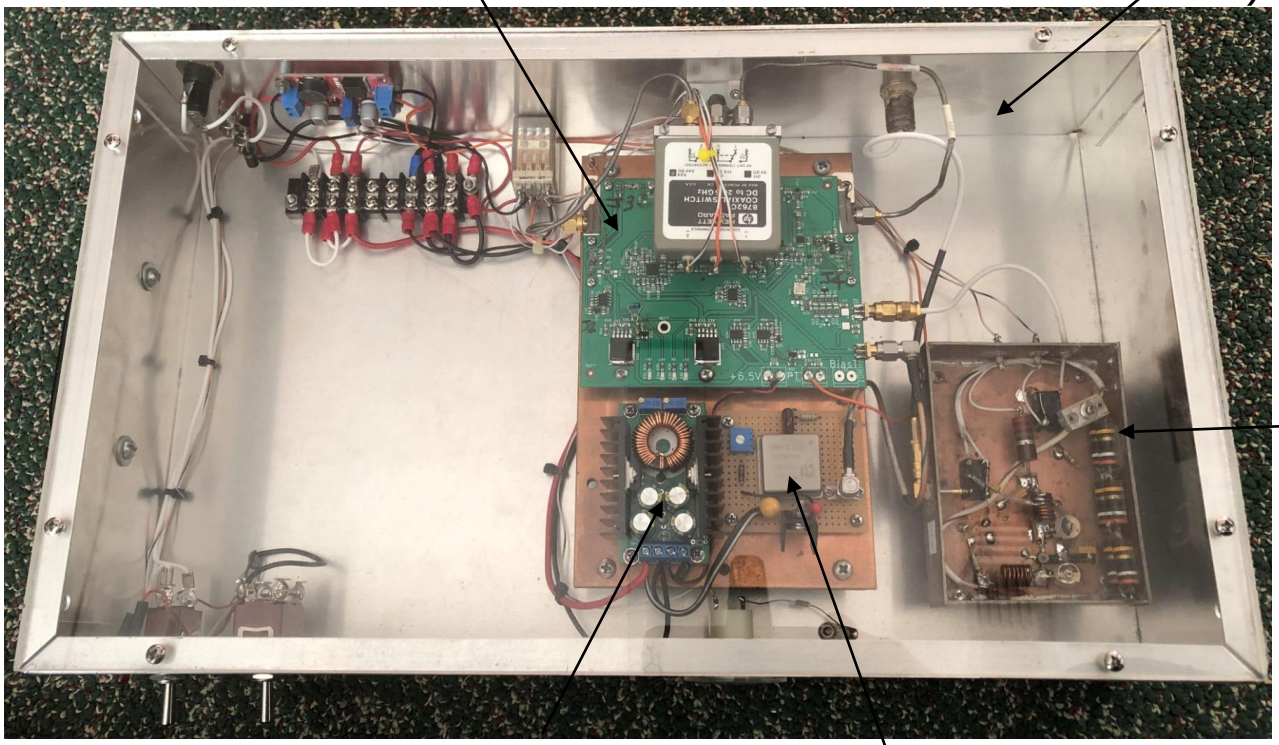
Wavelab 23X1008XP Module and PA0MHE Plug-on Board Mounted on Heat Sink

¼ inch Acrylic Cover (allows viewing status LEDs)



144 MHz I/F

12 VDC to 6.5 VDC Converter

10 MHz Reference

AA5C 24 GHz Transverter 144 MHz Interface

- Functions
  - Attenuate 144 MHz IF transmit signal
  - TX drive level adjustment
  - RX buffer amplifier
    - Protects PA0MHE board in case of inadvertent TX
  - T/R switching
- AA5C “standard” transverter interface to Yaesu FT-290R

AA5C 24 GHz Wavelab Transverter Front Panel

Wavelab module includes a TX power monitor/detector: -0.5 to -3.5 VDCJust select the series resistor value for your meter.

AA5C 24 GHz Wavelab Transverter Back Panel

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AA5C 24 GHz Wavelab Transverter Performance

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Parameter	Module	System	Comments
Gain (dB)	25.5	36.1	
Noise Figure (dB)	0.50	1.64	
Pout (dBm)	+30	+28.5	

Selected TX and RX 0.085 inch Semi-Rigid Cables for Lowest Lost
Could improve performance with a better coax solution.

AA5C 24 GHz Wavelab Transverter Summary

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- Nice 24 GHz transverter for about $275 investment
- Good performance – mostly set by the Wavelab module
- Completing the PA0MHE board is challenging – especially the 3 connectors – QC is critical
- Stay on top of parts changes and impacts
- KM5PO programming the ATTiny saved a lot of time – Thanks!